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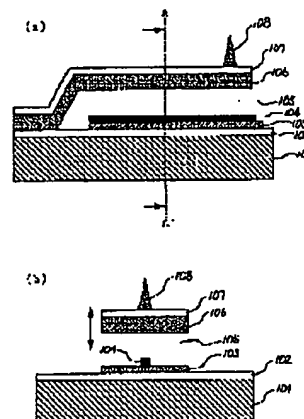
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(54) CANTILEVER TYPE DISPLACEMENT ELEMENT, CANTILEVER TYPE PROBE USING THE DISPLACEMENT ELEMENT, AND SCANNING TYPE PROBE MICROSCOPE AND DATA PROCESSER USING THE PROBE

(57)Abstract:

PURPOSE: To suppress short-circuiting so as to improve the durability, as well as to prevent a sticking phenomenon so as to simplify the manufacturing process and to improve the yield, by providing a projecting position of an insulating material to the surface of a substrate or the surface of a cantilever side, to a cantilever type displacement element.

CONSTITUTION: On the surface of a silicon substrate 101, a silicon nitride membrane 102 is laminated, and after a tungsten membrane is laminated thereover, a fixed electrode 103 is formed by a patterning. Furthermore, a silicone nitride to be an insulator is laminated, and by forming a projecting position 104 by a patterning, short-circuiting between the fixed electrode and an opposite electrode is prevented, as well as a sticking when the cantilever is released is prevented, in the manufacturing process thereafter. After that, a sacrificing layer 109, a multi-crystal silicon membrane 106, and a silicon nitride membrane 107 are laminated in order, and after a heat treatment is applied, the membranes 106 and 107 are made into a cantilever form by a patterning, and then, the sacrificing layer 109 is removed by an etching, and a clearance 105 is formed between the cantilever 106 and the fixed electrode 103.



LEGAL STATUS

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